



22/11 '00 17:30 FAX +61 2 6285 3929

PCT (AU)

POFMELB

Ø1008

PCT/AU99/00422 Received 2 February 2000

12

## CLAIMS:

- A pre-filled plastic syringe which includes: 1.
- 5 (a) a barrel;
  - (b) a moveable stopper which seals the barrel at one end:
  - a needle fitting which is integral with the barrel and which is (c) located at the end of the syringe remote from the moveable stopper; and
- 10 (d) a closure which seals the syringe at its needling fitting end;

wherein an injectable liquid is housed within the barrel between the moveable stopper and the closure and wherein the closure is a wall portion located within the barrel and/or the needle fitting of the syringe.

- A pre-filled plastic syringe as claimed in claim 1 wherein the wall portion is frangibly connected to the inner surface of the barrel or to the inner surface of 15 the needle fitting.
  - A pre-filled plastic syringe as claimed in claim 2 wherein the wall portion 3. extends across and is located within the opening of the barrel or of the needle fitting.
- 20 4. A pre-filled plastic syringe as claimed in any one of claims 1 to 3 wherein the closure is located wholly within the needle fitting of the syringe.
  - A pre-filled plastic syringe as claimed in any one of claims 1 to 4 wherein the wall portion is made of such material and is of such thickness that it may be punctured readily.
- 25 A pre-filled plastic syringe as claimed in any one of claims 1 to 5 wherein the needle fitting includes a hollow truncated cone, the interior of which is in liquid communication with the interior of the barrel once the seal created by the closure is broken)
- A pre-filled plastic syringe as claimed in any one of claims 1 to 6 wherein the needle fitting is in the form of a truncated cone surrounded by a peripheral 30 wall spaced from the cone.
  - A pre-filled plastic syringe as claimed in any one of claims 1 to 7 wherein the closure is a separate component which is located within the barrel or within the needle fitting.

AMENDED SHEET IPEA/AU





22/11 '00 17:31 FAX +61 2 6285 3929

PCT(AU)

→ POFMELB

Ø 009

PCT/AU99/00422 Received 2 February 2000

13

- 9. A plastic pre-filled syringe as claimed in claim 1 wherein the needle fitting includes an open ended hollow truncated cone the interior of which is in liquid communication with the interior of the barrel once the seal created by the closure is broken and the closure is an integral wall portion which is connected to the inner surface of the truncated cone and extends across its opening.
- 10. A plastic pre-filled syringe as claimed in claim 9 wherein the wall portion is located at any position along the length of the inner wall of the trunacated cone.
- 11. A plastic pre-filled syringe as claimed in claim 10 in which the closure is a wall portion which is frangibly attached to the inner surface of the truncated cone and located at least 2.0 mm from its open end.
  - 12. A plastic pre-filled syringe as claimed in claim 10 wherein the wall portion is frangibly attached to the inner surface of the truncated cone and located at least 4.0 mm from its end.
- 15 13. A plastic pre-filled syringe as claimed in any one of the previous claims in which the needle fitting is a luer lock needle fitting.
  - 14. A plastic pre-filled syringe as claimed in any one of the previous claims in which the closure is puncturable by the rear needle of a double sided hypodermic needle.
- 20 15. A plastic pre-filled syringe as claimed in any one of the previous claims wherein the closure may be detached or in part broken away from the inner surface of the needle fitting or the barrel by utilising a suitable tool.
  - 16. A plastic pre-filled syringe as claimed in any one of claims 10 to 13 wherein the closure is a wall portion which extends across the internal passage of the truncated cone and is frangibly attached to the inner surface thereof.
  - 17. A plastic pre-filled syringe as claimed in claim 16 wherein said wall portion includes a circumferential weakened section at or adjacent to its connection to the inner surface of the truncated cone.
- 18. A plastic pre-filled syringe as claimed in claim 17 wherein said wall portion is between 0.8 mm to 1.5 mm in thickness except in the weakened section where it is between 0.05 mm and 0.2 mm in thickness.
  - 19. A plastic pre-filled syringe as claimed in claim 18 wherein said weakened section does not extend all the way around the wall portion.

AMENDED SHEET IPEA/AU

COMPROVINGUISHANDUISH ETISPOTES CLAIMS DOC

*J* 

IJ



22/11 '00 17:31 FAX +61 2 6285 3929

PCT(AU)

→ P O F MELB

Ø010

PCT/AU99/00422 Received 2 February 2000

14

- 20. A plastic pre-filled syringe as claimed in claim 19 wherein the weakened section extends circumferentially through between 330 to 350° such that when the closure is broken away from the inner surface of the needle fitting along the weakened section the closure will remain attached to the inner surface of the needle fitting and will be able to hinge about that section at or adjacent to the inner surface of the needle fitting which is not weakened.
- 21. A plastic pre-filled syringe as claimed in any one of the previous claims which further includes a hollow closure opening conduit, a hypodermic needle and a needle support having an Internal cavity, said hypodermic needle being attached at one end to the needle support and said needle support being positioned over the needle fitting, wherein a first end of said closure opening conduit is positioned within said Internal cavity of the needle support and a second end of the closure opening conduit is positioned within said needle fitting, the closure opening conduit being in liquid communication with the hypodermic needle and being of such length that movement of the needle support towards the moveable stopper end of the syringe will cause the closure opening conduit to break the seal provided by the closure.
- 22. A plastic pre-filled syringe as claimed in claim 21 wherein the length of the closure opening conduit is such that full engagement of the needle support on the needle fitting provides sufficient movement of the closure opening conduit to break the seal provided by the closure.
- 23. A plastic pre-filled syringe as claimed in claim 22 wherein the cavity in the needle support includes an end face in which there is a centrally disposed aperture.
- 25 24. A plastic pre-filled syringe as claimed in claim 23 wherein the hypodermic needle is fitted and secured at one end within the aperture in the needle support and extends away from the cavity.
  - 25. A plastic pre-filled syringe as claimed in claim 24 wherein the closure opening conduit is located within the cavity with the first end abutting the end face of the cavity with the internal passage therein in alignment with the aperture in the end face of the needle support.
  - 26. A plastic pre-filled syringe as claimed in claim 25 wherein one end of the closure opening conduit is adjacent to or abuts the surface of the closure.

AMENDED SHEET

C: MINORIMELESANOCELETEPCT CZ CAMINE COO

5

10

15

20

IJ





22/11 '00 17:32 FAX +61 2 6285 3929

PCT(AU)

P O F MELB

Ø 011

PCT/AU99/00422 Received 2 February 2000

15

- 27. A plastic pre-filled syringe as claimed in any one of claims 21 to 26 wherein said closure opening conduit is integral with and extends from the needle support.
- 28. A plastic pre-filled syringe as claimed in any one of claims 21 to 26 wherein said closure opening conduit is a separate component.
- 29. A plastic pre-filled syringe as claimed in any one of claims 21 to 28 wherein said closure opening conduit includes a central conduit and fins or ribs which extend outwardly therefrom.
- 30. A plastic pre-filled syringe as claimed in any one of claims 21 to 29 which further includes an overcap located over the hypodermic needle.
  - 31. A plastic pre-filled syringe as claimed in any one of the previous claims wherein the filled and assembled syringe is hermetically sealed within a clear plastic wrapper.
  - 32. A method of using a plastic pre-filled syringe as claimed in any one of claims 21 to 30 wherein said hypodermic needle is pushed or twisted onto the needle fitting whilst the product is in a hermetically sealed package.
    - 33. A method as claimed in claim 32 wherein the movement of the hypodermic needle onto the needle fitting causes the closure opening conduit to break the seal provided by the closure.
- 20 34. A pre-filled plastic syringe as claimed in any one of the previous claims manufactured from a thermoplastics material.
  - 35. A plastic pre-filled syringe substantially as hereInbefore described with reference to what is slipun in any one of the drawings.